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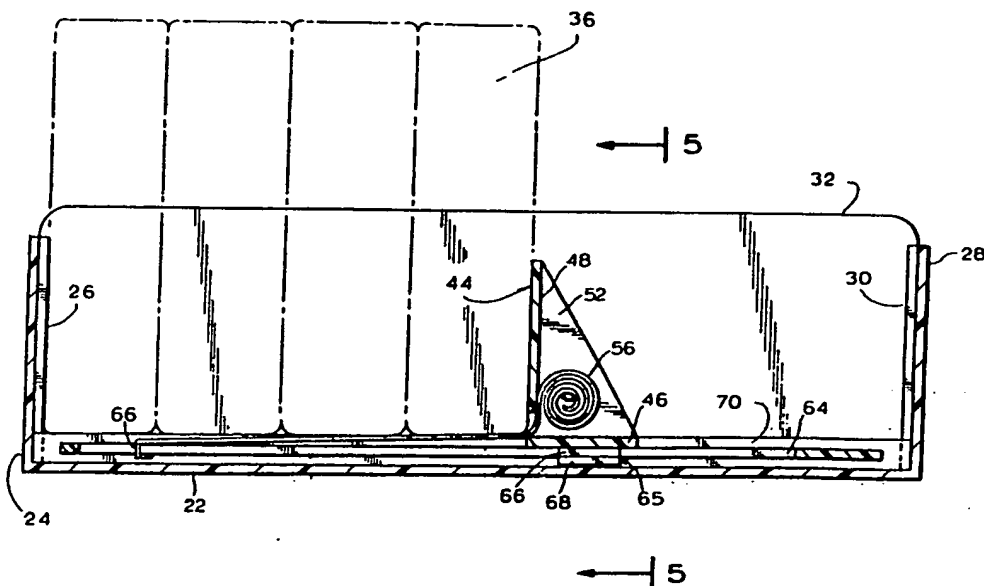
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(54) Title: MULTI-PACKAGE ADJUSTABLE SHELF DISPLAY DISPENSER



(57) Abstract

The invention relates to a display (20) comprising a package pusher (44) operated by a coiled spring (56, 103) and slidable within a slot (64) to push packages (36) forward to the front of a shelf (22), the pusher being laterally movable to accommodate various sized packages at various lateral positions along the shelf. The pusher is a part of a feed structure having ends engaging vertical grooves (26, 30) in upstanding walls (24, 28) fore and aft of the shelf and forming a part of a dispensing tray. The tray may be formed of laterally connected modules. Lateral displacement of the package pusher to accommodate various sized packages and positioning thereof may be accommodated by the provision of laterally spaced slots (101) within a shelf (22) having a forward wall to catch the forward-most package.

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MULTI-PACKAGE ADJUSTABLE SHELF DISPLAY DISPENSER

FIELD OF THE INVENTION

The present invention relates to shelf display and placement of packages.

BACKGROUND OF THE INVENTION

Prior art displays such as disclosed in Jackle III et al., U.S. 4,762,236, provide coil springs moving a trolley or pusher so as to advance packages forwardly of a display shelf. Stevens 2,652,154 also discloses a similar trolley biased by a rubber strand requiring a roller and anchoring pin. Ord, U.S. 3,291,544, discloses an article dispensing system with a spring biased pusher. Hawkinson, U.S. 4,729,481, discloses a packaged goods advancing system in which a tensioned sheet or belt is provided for advancing the goods. Dechirot, U.S. 4,821,894 and Roberts, U.S. 4,475,658, disclose mounting packages with a coil spring coupled for urging a thrust plate and inventory control cards for advancing the packages, respectively. These prior art structures are very elaborate and contemplate solving complicated storage and preventing problems with complicated apparatus.

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THE INVENTION

By the present invention, the packages which are moved forward in parallel columns as each forward package is removed, are pushed by pusher elements which are laterally displaceable to accommodate and position different sized packages. Tray elements incorporating laterally displaceable pusher elements provide stable placement of the pushers and are provided in modular sections to convert shelves to package display and placement apparatus.

This invention relates to shelf displays for packages of the type in which packages are moved forward in parallel columns for display and presenting for dispensing one by one from each column. In any given column the packages may be of uniform size, nonetheless, adjacent columns may feed different sized packages. It is an object of the invention to provide an assembly for feeding variant and variable sized processions in parallel formation. It is a further object to provide for ready adjustment of the dispenser to accommodate various package dimensions. It is an object to provide a relatively low-cost (non-labor intensive) structure, that is readily and conveniently adjustable to arrange for displaying packages and for presenting such packages one by one for removal from a display shelf.

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It is a further object of the invention to provide in such a structure the capability of last in, last out feed to maintain stock freshness and visual display of on shelf inventory.

In the first instance, the objects of the invention are carried out by the provision of a coil spring riding on a trolley with the end of the coil spring secured adjacent a forward wall on a shelf with the trolley being movable in a slot or on rails from a rearmost position where several packages have been disposed in front of it to a forwardmost position as each package in the procession of packages is removed from the front of the shelf. The trolley is movable laterally either by disposing it on a slide which slide is received at its forward and rearward ends in vertical slots in the rearward and forward walls of a display tray disposed on a shelf; or by positioning the trolley within one of several side by side and laterally spaced slots formed in a shelf having a forward wall.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a plan view of a preferred embodiment of the invention.

Fig. 2 is a fragmentary isometric exploded view of the same.

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Fig. 3 is an enlarged plan view of a segment of Fig. 1.

Fig. 4 is a sectional elevation taken on the line 4-4 of Fig. 1.

Fig. 5 is taken on line 5-5 of Fig. 4.

Fig. 6 is a schematic top plan view of a shelf providing laterally spaced slots for receiving a coil spring trolley; and

Fig. 6A is a schematic sectional view of the shelf of Fig. 6 taken along lines 6A-6A of Fig. 6.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring more specifically to the drawings, the display mechanism 20 comprises a tray 22 having an upstanding wall 24 with a dentate vertical groove structure 26 formed on the inward facing side of wall 24. A similar upstanding rearward wall 28 faces the wall 24 and has its dentate structure 30 facing toward the wall 24 and in register therewith. The dentate structures 26 and 30 preferably but not necessarily extend vertically the whole height of the walls 24, 28.

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The sides of the tray provide female and male dove-tails 72, 74 respectively for stable connection of adjacent trays 22 upon an existing display shelf.

Vertical structures or guides 26, 30 in corresponding register one to the other receive the spacers or walls 32 to define a channel for guidance of a procession or column of packages 34 and 36. As shown in Fig. 1, packages 36 have a larger dimension than the packages 34. Therefore, the channel formed by the spacers 32 is wider for packages 36 as indicated by the dimension A than the width for packages 34 indicated by the dimension B. These distances, A and B, can be varied by selection of registering guides 26, 30 in which the spacers 32 are supported.

The spacers 32 may be eliminated when packages are shaped as to minimize lateral displacement when pushed forward in a procession.

Mounted between a pair of walls 32 is a feed structure or slide 38 having side rails 40 and 42 (Fig. 2) which engage vertical grooves of the dentate structures 26 and 30. Rails 40, 42 are joined and spaced by plate 62. A pusher foot 44 has a horizontal plate 46, a vertical pusher plate 48 and supporting triangular spaced braces 50, 52. Braces 50 and 52 form with pusher plate 48 a chamber to contain the

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coil spring 56. The plate 48 has formed in it an opening 58 communicating with the chamber through which the terminal catch 60 and body portion 57 of spring 56 may extend and be drawn out as shown in Fig. 4. Tension of coil spring 56 urges the coil against plate 48 while braces 52, 50 prevent twisting of coil and body portion 57. The plate 62 supports parallel tracks 70 and has formed in it a slot 64 communicating with an enlarged aperture 63 formed in plate 62. A plow 65 is secured to the bottom of plate 46. Plow 65 has a vertical member 66 carrying a horizontal flange 68. The plow 65 engages slot 64 while its plate 46 rides on tracks 70. The flange 68 holds down plow 65 while spring 56, with its catch 60 secured in aperture 63 (see Fig. 4) urges the pusher 44 forward (to the left in Fig. 1).

In operation, the mechanism 20 may be extended as a retail shelf construction or the mechanism 20 or several of them in side by side relation may be placed on an existing retail shelf or in any desirable cabinet or supplied with a cover (not shown) covering all but the front end, shown at the left in Fig. 1. Packages 34, 36 ride on rails 40, 42. To load packages, the pusher foot 44 is moved to the right and new packages added preferably to the rear (right Fig. 1). The packages are fed, one at a time, to the front of the machine at the left. The pusher foot 44 under the urging of the spring 56 slides the packages forward on rails 40, 42

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between the adjustable walls 32 to the front end of the machine (left as shown in Fig.1).

Dimensions of the tray 22 are a matter of discretion as to width and depth. Regardless of its dimensions and regardless of the number of slides 38 employed, spacing between the walls 32 is adjustable and the centering of the slides 38 in the channel formed between the walls 32 in all adjusted positions is made possible.

The spacers 32 may be eliminated when packages are shaped to provide flat adjacent surfaces fore and aft and lateral displacement is minimized. In such instances, the rails 40, 42 of the feed structure 38 are positioned in selected vertical grooves of walls 26, 30 to center the forward force against the center of the rearmost package.

The invention conceptually contemplates the provision of a shelf 100 as depicted in Figs. 6 and 6a, provided with laterally-spaced slots 101 for receiving and guiding pusher foot 102 mounting a coil spring 103. The distal end 103A of the coil spring is secured to a pin 104 at the forward portion of the shelf which also provides an upstanding wall 105 against which the front package of the procession of packages is forced and which serves as a stop. The base of the pusher foot has an integral plow 106 and a hold-down

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plate 107 to slide along slot 101. An enlarged aperture 163 communicates with the slot 101 and is of sufficient size to permit transfer of the plate 107, plow 106 and pusher foot 102 to any selected slot 101. Free end 103a of spring 103 is secured to a pin 104 at the end of the corresponding selected slot 101.

Springs 56 and 103 are shown mounted so the free end leads from the top of the coil (spring 56) or from the bottom of the coil (spring 103). I have found both these arrangements useful. Spring 56 as shown presses downwardly as well as forwardly, while spring 103 as show tends to lift the pusher upwardly.

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I claim:

1. A multi-package shelf display comprising a bottom portion and an upstanding front wall, a plurality of vertical guides in said upstanding front wall, at least one slide member having front and rear ends received in certain of said vertical guides and pusher means constructed and arranged to move along said slide member from said rear wall to said front wall for pushing a column of packages forwardly upon removal of a forwardmost package.

2. The display set forth in claim 1 further characterized in that said slide member is removable from said certain vertical guides and may be selectively retained by other of said plurality of guides to selectively secure said member along the width of said tray.

3. The display set forth in claims 1 or 2 further characterized in that said slide member includes an elongated member positioned normal to said front and rear walls, a pusher mounted for movement along said member and a device in contact with said pusher and said member and constructed and arranged to move said pusher in one direction along said member.

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4. A display as set forth in claim 1 further characterized by a partition extending forwardly and rearwardly, the ends of which are supported in selected ones of said vertical guides to form a channel, and said slide member is in said at least one channel the width of said channel being selectively variable by moving said partition to other of said vertical guides.

5. A display as set forth in claim 4 further characterized by a plurality of partitions forming a plurality of channels and a plurality of slide members in said plurality of channels selectively retained by said guides to selectively secure said members in said channels.

6. The display set forth in claim 1 further characterized in that said slide member includes at least one pair of rails, means supporting said rails on said slide member in spaced parallel relationship, the ends of said rails adapted to engage selected ones of said plurality of guides, and said rails comprise means for supporting a package moved by said pusher means.

7. The display set forth in claim 6 further characterized by biasing means to urge said pusher in one direction along said means.

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8. The display set forth in claim 2 further characterized in that said slide member comprises:

a spacer plate;

rails mounted on said spacer plate;

said rails at their ends engagable with said vertical guides and with the other of said plurality of guides;

said spacer plate having a slot running parallel said rails for a substantial distance;

parallel tracks between said rails mounted on said spacer plate;

a pusher mounted to slide on said tracks;;

a plow on said pusher engaged in said slot to hold said pusher down upon said tracks; and

a coiled spring on said pusher having one end secured to one end of said spacer plate and constructed and arranged to move said pusher along said tracks and said slot to said one end.

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9. The display set forth in claim 4 further characterized in that said slide member includes:

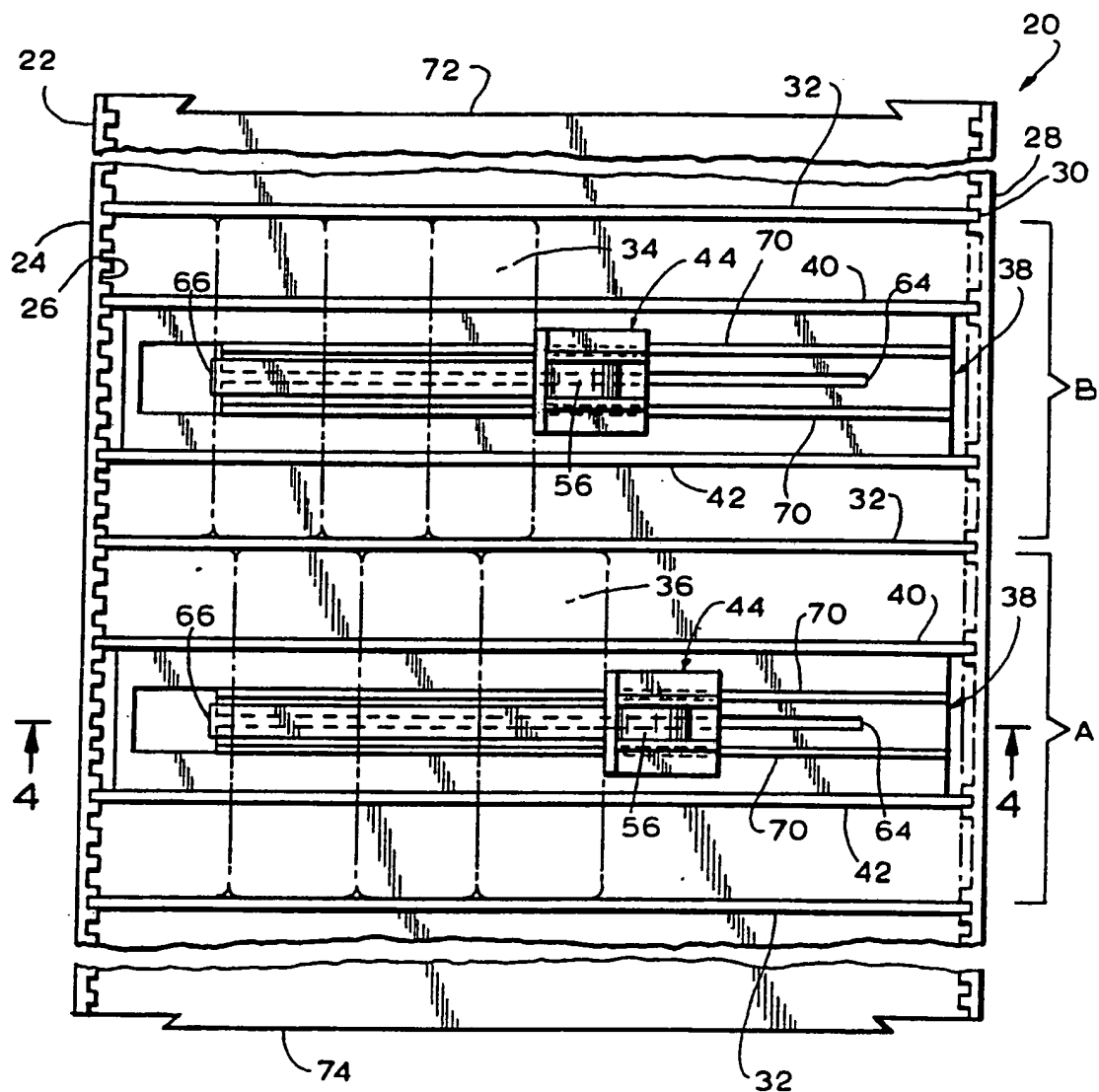
a spacer plate parallel said partition;
tracks mounted on said spacer plate;
instrumentalities to engage other of said plurality of guides to position said spacer plate between said partitions;
a slot formed in said spacer plate running parallel thereto;
a pusher mounted to slide on said tracks;
a plow on said pusher engaged in said slot to hold said pusher down upon said track; and
biasing means constructed and arranged to move said pusher in one direction along said tracks.

10. A multi-package adjustable display-dispenser comprising a tray having a bottom portion and upstanding front and rear walls, the upstanding front and rear walls having a plurality of vertical guides on their facing sides, a pair of movable partitions supported by selected guides of said plurality of guides on each of said oppositely facing walls to define a channel of selected width, and pusher means constructed and arranged to move along said channel from said rear wall to said front walls, whereby packages placed between said partitions may be moved by said pusher means and the size of said channel and said packages selectively varied.

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11. A package display and placement shelf comprising a bottom portion and an upstanding front wall, at least two slots extending fore and aft of said bottom portion and at least one slide member, means for mounting and removing said slide member selectively in one of said at least two slots, a coil spring mounted on said slide member with a free end extendable forwardly toward said front wall and means for releasably securing said free end.

FIG. 1



SUBSTITUTE SHEET

FIG. 2

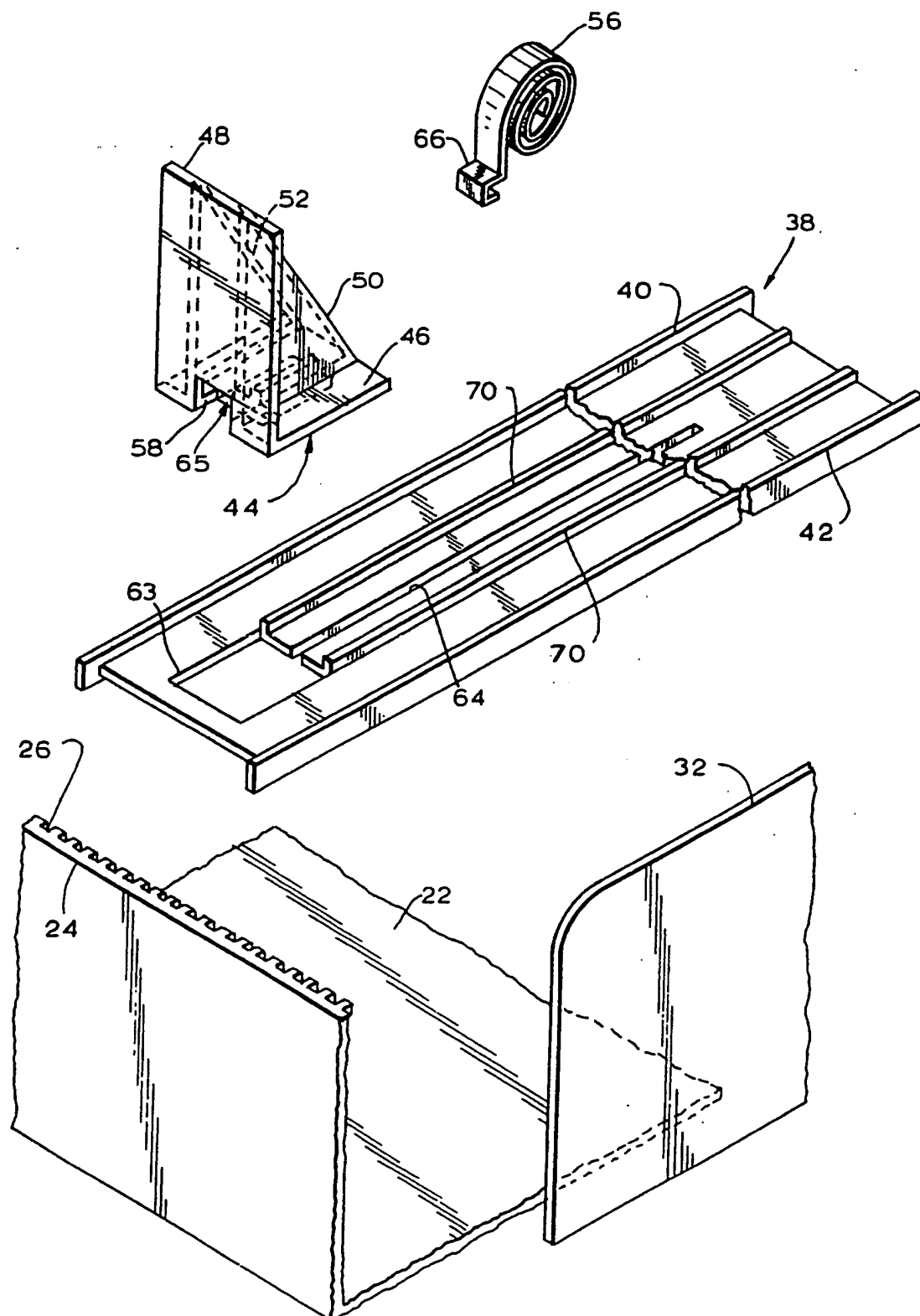


FIG. 3

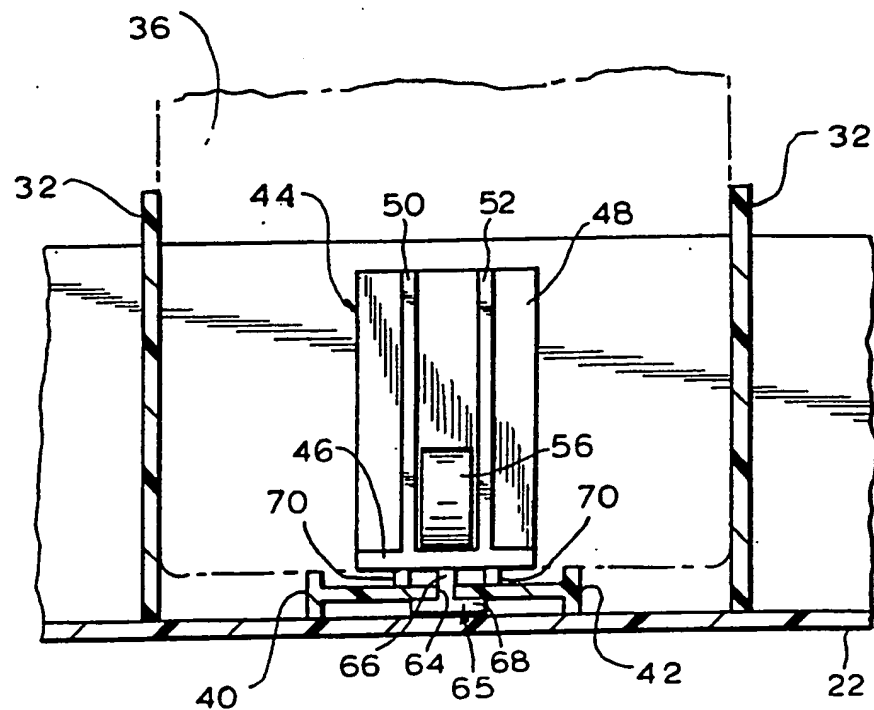
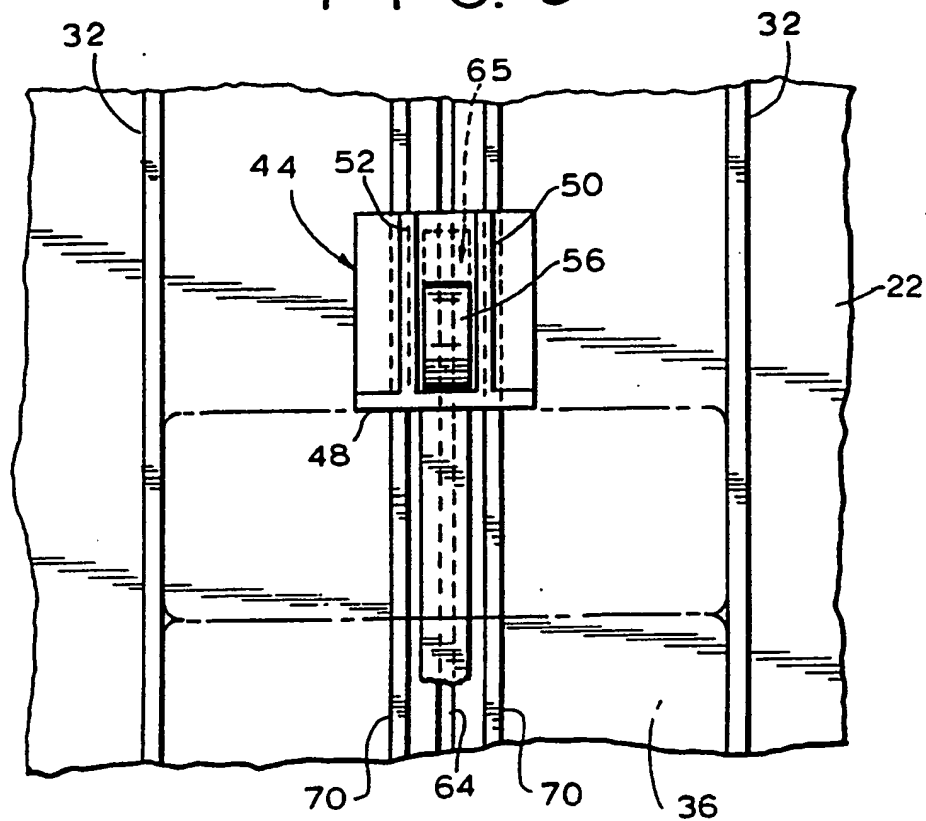
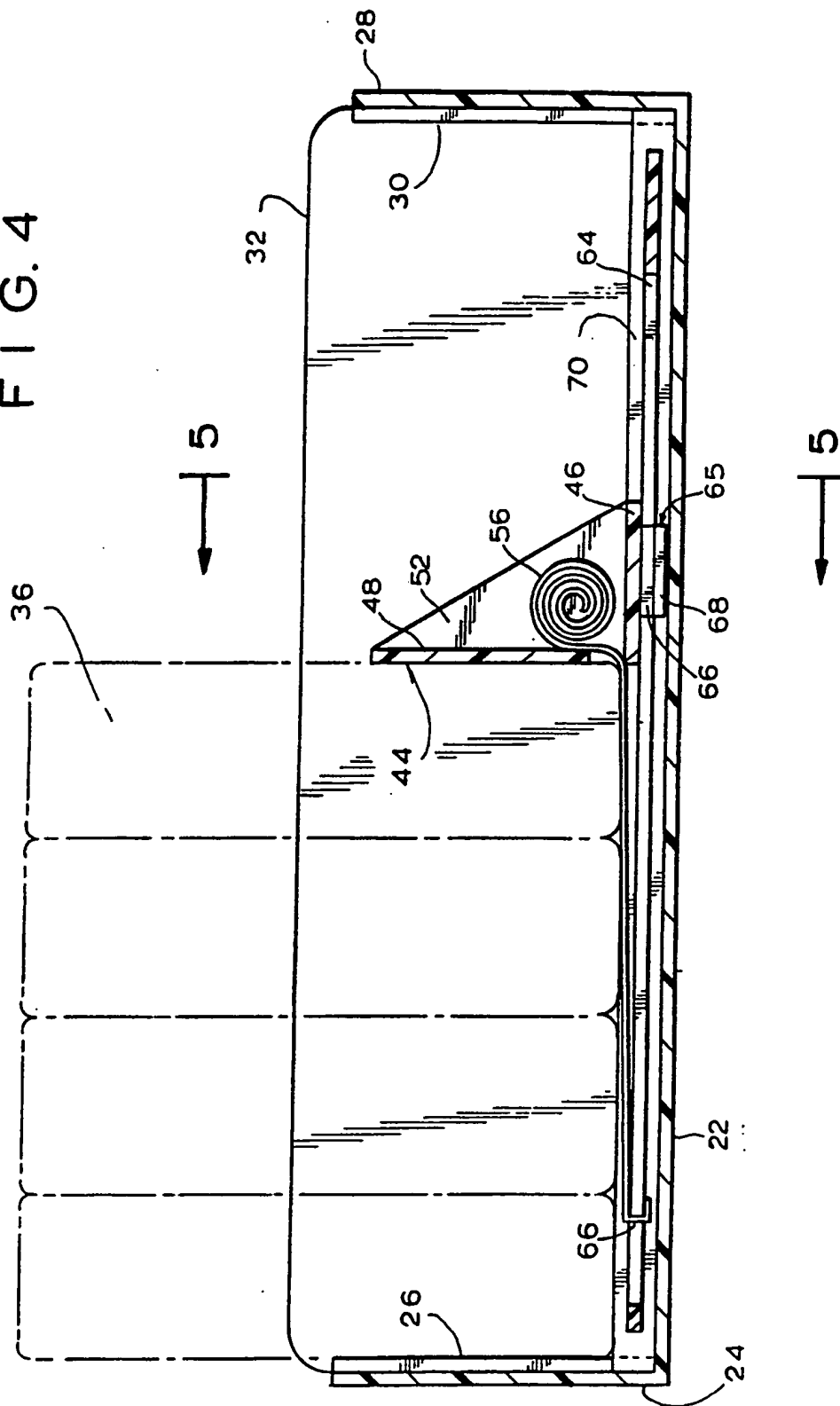


FIG. 5

FIG. 4



SUBSTITUTE SHEET

FIG. 6

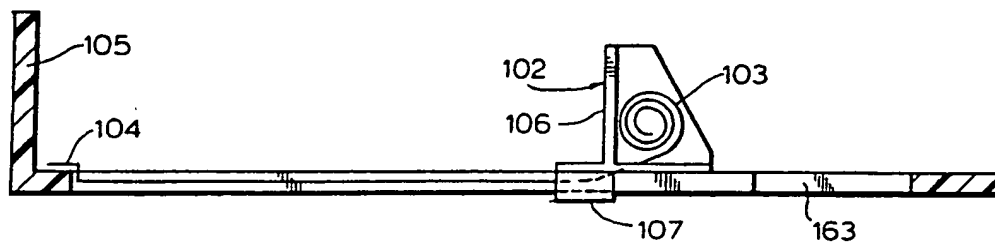
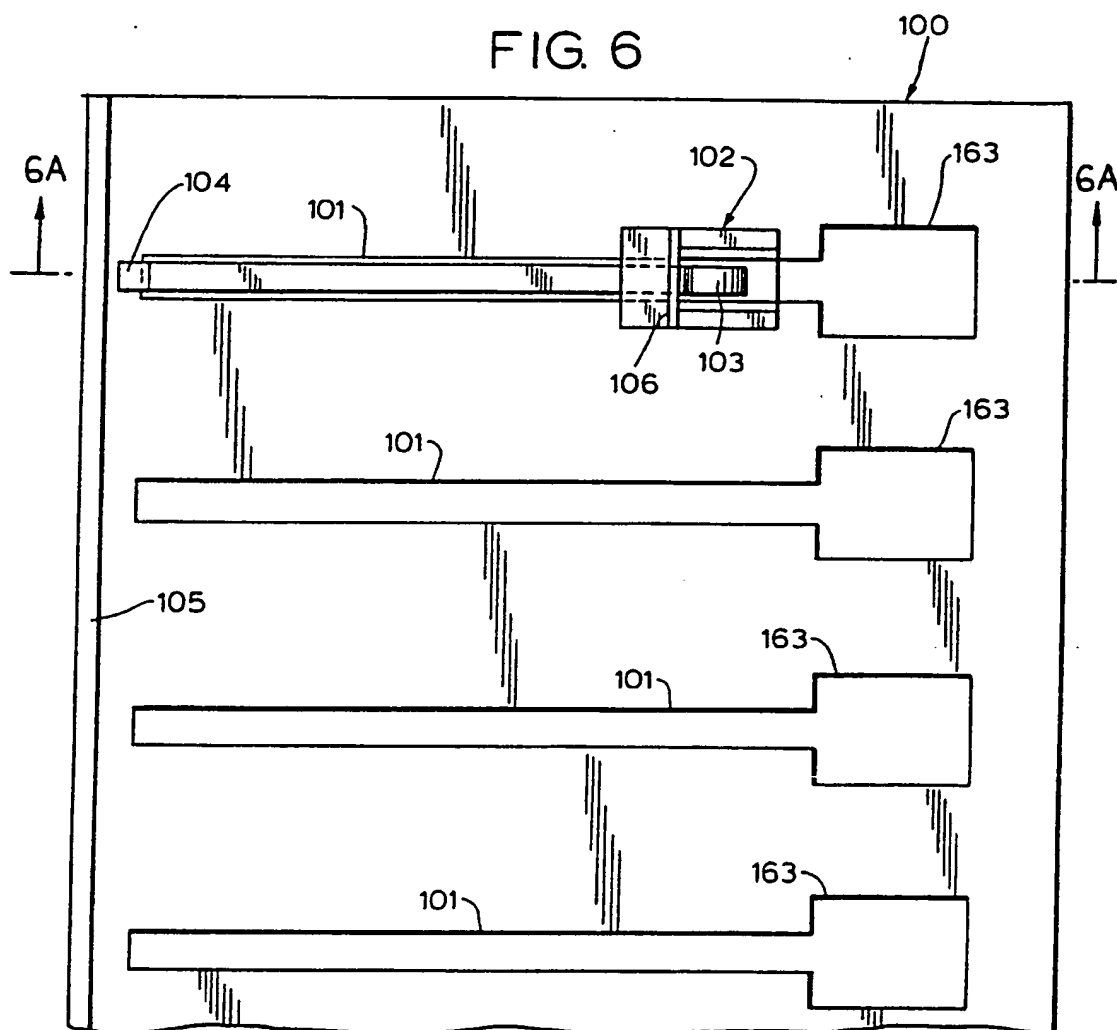


FIG. 6A

INTERNATIONAL SEARCH REPORT

International Application No. **PCT/US90/01920**

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ³ According to International Patent Classification (IPC) or to both National Classification and IPC IPC (5): A47F 3/08 US Cl: 221/279, 92, 131; 211/59.3																							
II. FIELDS SEARCHED <div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black; margin: 5px 0;">Minimum Documentation Searched ⁴</div> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 20%; border: 1px solid black; text-align: left;">Classification System</th> <th style="border: 1px solid black; text-align: left;">Classification Symbols</th> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">US</td> <td style="border: 1px solid black; vertical-align: top;">221/92,124,125,131,227,279; 211/43,51, 59.3; 312/61,71</td> </tr> </table> <div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black; margin: 5px 0;">Documentation Searched other than Minimum Documentation to the extent that such Documents are Included in the Fields Searched ⁵</div>			Classification System	Classification Symbols	US	221/92,124,125,131,227,279; 211/43,51, 59.3; 312/61,71																	
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US	221/92,124,125,131,227,279; 211/43,51, 59.3; 312/61,71																						
III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴ <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%; border: 1px solid black; text-align: left;">Category ⁶</th> <th style="border: 1px solid black; text-align: left;">Citation of Document, ¹⁵ with indication, where appropriate, of the relevant passages ¹⁷</th> <th style="border: 1px solid black; text-align: left;">Relevant to Claim No. ¹⁸</th> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">X Y</td> <td style="border: 1px solid black; vertical-align: top;">US, A 4,762,236 (JACKLE, III et al.) 09 August 1988 See the entire document</td> <td style="border: 1px solid black; vertical-align: top;">1-7, 10-11 8-9</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">Y</td> <td style="border: 1px solid black; vertical-align: top;">US, A 4,907,707 (CRUM) 13 March 1990 See the entire document</td> <td style="border: 1px solid black; vertical-align: top;">8-9</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">A</td> <td style="border: 1px solid black; vertical-align: top;">US, A 3,452,899 (LIBBERTON) 01 July 1969 See figures land 2</td> <td></td> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">A</td> <td style="border: 1px solid black; vertical-align: top;">US, A 3,308,961 (CHESLEY) 14 March 1967 See column 2 lines 3-10 and column 3 lines 20-31</td> <td></td> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">A</td> <td style="border: 1px solid black; vertical-align: top;">US, A 2,738,881 (MICHEL) 20 March 1956 See the entire document</td> <td></td> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">A</td> <td style="border: 1px solid black; vertical-align: top;">US, A 4,836,390 (POLERE) 6 June 1989 See the entire document</td> <td></td> </tr> </table> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <p>⁹ Special categories of cited documents: ¹⁶</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the International filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"d" document member of the same patent family</p> </div> </div>			Category ⁶	Citation of Document, ¹⁵ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸	X Y	US, A 4,762,236 (JACKLE, III et al.) 09 August 1988 See the entire document	1-7, 10-11 8-9	Y	US, A 4,907,707 (CRUM) 13 March 1990 See the entire document	8-9	A	US, A 3,452,899 (LIBBERTON) 01 July 1969 See figures land 2		A	US, A 3,308,961 (CHESLEY) 14 March 1967 See column 2 lines 3-10 and column 3 lines 20-31		A	US, A 2,738,881 (MICHEL) 20 March 1956 See the entire document		A	US, A 4,836,390 (POLERE) 6 June 1989 See the entire document	
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IV. CERTIFICATION <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border: 1px solid black; padding: 5px;"> Date of the Actual Completion of the International Search ² 12 July 1990 </td> <td style="width: 50%; border: 1px solid black; padding: 5px;"> Date of Mailing of this International Search Report ³ <div style="text-align: center; font-weight: bold; font-size: 1.2em;">04 SEP 1990</div> </td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;"> International Searching Authority ¹ ISA/US </td> <td style="border: 1px solid black; padding: 5px;"> Signature of Authorized Officer ¹³ <div style="text-align: center;"> Dean A. Reichard </div> <div style="text-align: center; font-weight: bold; font-size: 0.8em;">NGOC-HO INTERNATIONAL DIVISION</div> </td> </tr> </table>			Date of the Actual Completion of the International Search ² 12 July 1990	Date of Mailing of this International Search Report ³ <div style="text-align: center; font-weight: bold; font-size: 1.2em;">04 SEP 1990</div>	International Searching Authority ¹ ISA/US	Signature of Authorized Officer ¹³ <div style="text-align: center;"> Dean A. Reichard </div> <div style="text-align: center; font-weight: bold; font-size: 0.8em;">NGOC-HO INTERNATIONAL DIVISION</div>																	
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